

NOTES ON THE GENUS CLERODENDRUM (VERBENACEAE). VIII

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This paper is a continuation of the notes on this genus begun by me in *Phytologia* 57: 157 (1985) and most recently continued in 58: 178--218 (1985).

CLERODENDRUM Burm.

Additional & emended bibliography: *Almagia* in *Pirotta*, Fl. Col. Erit. [Ann. Inst. Bot. Roma 8:] 134. 1903; Elm., Leafl. Philip. Bot. 5: 1847--1849. 1913; Dinter, Feddes Repert. Spec. Nov. 16: 168. 1919; DeWild., Contrib. Fl. Katanga 165--167. 1921; Corner, Wayside Trees, ed. 2, 695, 696, & 699--701. 1952; Wycherley & Nair, Proc. Sympos. Humid Trop. Veg. 274 & 277. 1958; Mold., Dansk Bot. Arkiv 23: 87--88. 1963; Corner, Life Pl., imp. 1, 275 & 294. 1964; Corner & Watanabe, Illust. Guide Trop. Pl. 753--757. 1969; Corner, Life Pl., imp. 2, 275 & 294. 1981; Mold., *Phytologia* 58: 178--218. 1985.

CLERODENDRUM BROOKLEANUM W. W. Sm.

Additional bibliography: Mold., *Phytologia* 58: 218. 1985.

Smith (1915) comments: "As pointed out by Sir Joseph Hooker in Bot. Mag. under tab. 7887, the Bornean plant is closely allied to *C. myrmecophila* Ridley. The manuscript name *C. macrophyllum*, Hook., is antedated by *C. macrophyllum*, Sims, a synonym of *C. serratum*, Spreng." The *C. macrophyllum* Hort. is also a synonym of *C. serratum* (L.) Moon, while *C. macrophyllum* Blume is *C. phyllomega* Steud.

Nothing is known to me of *C. brookeanum* except what is stated in the literature.

CLERODENDRUM BROOKSII Ridl., Kew Bull. Misc. Inf. 1925: 88 [as "Clerodendron"]. 1925; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 63 & 89. 1942,

Synonymy: *Clerodendron brooksii* Ridl., Kew Bull. Misc. Inf. 1925: 88. 1925.

Bibliography: Ridl., Kew Bull. Misc. Inf. 1925: 88. 1925; A. W. Hill, Ind. Kew. Suppl. 7: 51. 1929; Fedde & Schust., Justs Bot. Jahresber. 53 (1): 1072. 1932; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 63 & 89 (1942) and ed. 2, 143 & 180. 1949; Mold., Résumé 187 & 448. 1959; Mold., Fifth Summ. 1: 321 (1971) and 2: 862. 1971; Mold., Phytol. Mem. 2: 312 & 534. 1980.

A subshrub, almost entirely glabrous; leaves decussate-opposite; petioles 2 cm. long; leaf-blades herbaceous, oblong-ob lanceolate, 22 cm. long, 8.4 cm. wide, apically acuminate, marginally sinuate, basally narrowed and obtuse or subrotundate; midrib prominent beneath; secondaries 7 or 8 pairs; inflorescence terminal, paniculate, loose, erect, 13 cm. long; peduncles 4 cm. long; bracts linear, 1 cm. long, apically acute; bractlets similar but smaller; pedicels very slender, 7 mm. long; sepals lanceolate, 5 mm. long, apically acute or acuminate, basally connate, puberulent; corolla white, puberulent,

its tube slender, 1 cm. long, the lobes oblong, apically rotundate, dorsally puberulent; stamens long-exserted; filaments filiform; anthers oblong-linear, basally bifid.

The species is based on Brooks 9240 from Lubok Tandai, Sumatra. It is said by Ridley (1925) to be allied to *C. disparifolium* Blume, "but the plant is almost entirely glabrous, the sepals broader and shorter, the corolla not hairy but minutely puberulous." Nothing is known to me of this species except what is stated in the bibliography.

CLERODENDRUM BRUNFELSIIFLORUM H. Hallier, Meded. Rijks Herb. Leid.

37: 68. 1918.

Synonymy: *Clerodendrum catalpifolium* H. Hallier, Meded. Rijks Herb. Leid. 37:67. 1918. *Clerodendron brunfelsiiiflorum* Hall. f. apud H. J. Lam, Verb. Malay. Arch. 275 & 363. 1919. *Clerodendron catalpifolium* Hall. f. apud H. J. Lam, Verb. Malay. Arch. 375 & 363 in syn. 1919.

Bibliography: H. Hallier, Meded. Rijks Herb. Leid. 37: 67--68. 1918; H. J. Lam, Verb. Malay. Arch. 275 & 363. 1919; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 91, 108, & viii. 1921; A. W. Hill, Ind. Kew. Suppl. 6: 49. 1926; Mold., Alph. List Inv. Names 16. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 66 & 89 (1942) and ed. 2, 148 & 180. 1949; Mold., Résumé 198, 261, & 448. 1959; Mold., Fifth Summ. 1: 331 & 442 (1971) and 2: 862. 1971; Mold., Phytol. Mem. 2: 322 & 534. 1980.

A subshrub; branchlets terete or obtusely tetragonal, 3--6 mm. in diameter, compressed at the nodes, very softly ochraceous- or ferruginous-villous or -hirsute, the hairs dense, short, and rather spreading; leaves decussate-opposite, anisophyllous; petioles 2--16 cm. long, subterete, dorsally narrowly or obsoletely sulcate, densely soft-villous or -hirsute like the branchlets; leaf-blades ovate or ovate-lanceolate, 9--30 cm. long, 4.5--16 cm. wide, apically caudate (the acumen long and narrow), marginally entire, basally acute to subrotund or cordate, greenish-brown above in drying and sparsely setulose when young, subglabrous (except for the venation) above when adult, paler beneath, prominently subpalmately pinnate- and clathrate-veined, densely villous on the larger venation beneath like the branchlets, minutely glandular-punctulate on both surfaces, more conspicuously so beneath and especially so basally and near the midrib and secondaries, the glands discoid; tertiaries laxly transverse; veinlet reticulation fine; inflorescence terminal, paniculate, pyramidal, trichotomous, densely soft-villous or -hirsute like the branchlets, the pubescence mixed with glandular-capitate hairs; lower bracts similar to the leaves, the upper ones gradually smaller and lanceolate, the ultimate ones linear, pedicels 4--5 mm. long, about as long as or shorter than the calyx; calyx cyathiform, 5--10 mm. long, 5-fid to 1/4 to 1/2 its length, externally densely soft-hirsute, red (?) when fresh, the lobes about 3 mm. long, apically acute, more loosely hirsute and obsoletely glandulose; corolla cyathiform, externally slightly glandulose and sparsely hirtellous with weak, multi-septate, spreading hairs, the tube slender, 1.6--2 cm. long, 2--4 times as long as the calyx, plainly incurved in bud, finally straight,

the lobes oblong-obovate, 3--7 mm. long, 1/5 to 1/4 as long as the tube; stamens long-exserted, the free portion 1--3 cm. long.

The type of this species is an unnumbered collection of DeVries & Teijsmann from Buruh [Buru] in the Molucca Islands, collected in 1859 or 1860. The type of *C. catalpifolium* is also an unnumbered collection by the same collectors from the same island and made during the same years. Hallier (1918) notes for the latter: "Sp. 5 praecedentibus et *Cl. buruano* Miq. arcte affinis, a posteriore inter alias notas corollae tubo longiore genitalibusque alte exsertis bene distinctum." For *C. brunfelsiiflorum* he says "Sp. praecedente [*C. catalpifolium*], *Cl. lindavianum* Lauterb. et *Cl. buruano* arcte affine, a posteriore inter alias foliis nunquam subcordatis, calyce multo longiore, genitalibus alte exsertis bene distinctum." It seems most likely to me that all are merely varieties or forms of *C. buruanum* Miq.

It may be worth noting here that Hill, in the Index Kewensis (1926), incorrectly cites the original publication of *C. brunfelsiiflorum* to page "78" instead of 68.

CLERODENDRUM BRUNNESCENS Mold., Amer. Journ. Bot. 38: 321. 1951.

Synonymy: *Clerodendrum brunescens* Mold. in Humbert, Fl. Madag. 174: 193, fig. 31 (6 & 7) sphalm. 1956.

Bibliography: Mold., Amer. Journ. Bot. 38: 321. 1957; Mold. in Humbert, Fl. Madag. 174: 151, 193, 195, 196, & 267, fig. 31 (6 & 7). 1956; Mold., Résumé 155 & 448. 1959; G. Taylor, Ind. Kew. Suppl. 12: 26. 1959; Mold., Fifth Summ. 1: 259 (19/1) and 2: 862. 1971; Mold., Phytol. Mem. 2: 248 & 534. 1980; Mold., Phytologia 58: 187. 1985.

Illustrations: Mold. in Humbert, Fl. Madag. 174: 193, fig. 31 (6 & 7). 1956.

An epiphytic shrub, about 4 dm. tall, simple or sparingly branched; stems and branches medium-stoutish, compressed-tetragonal, prominently lenticellate, glabrous; nodes not annulate; principal internodes very much abbreviated, 0.5--2.3 cm. long; leaf-scars very large and prominent; leaves decussate-opposite; petioles stout, nigraceous, 1--2 cm. long, glabrous; leaf-blades membranous, brunnescence in drying, elliptic, 9--19 cm. long, 5--9 cm. wide, apically acute or very slightly short-cuspidate to acuminate, marginally entire, basally acute or acuminate, glabrous or subglabrate on both surfaces, more or less black-glandulose on the lamina along the midrib beneath; midrib slender or stoutish, flat above, very prominent beneath; secondaries very slender, 6--9 per side, arcuate-ascending, flat above, prominent beneath, arcuately joined near the margins beneath; vein and veinlet reticulation sparse, indiscernible above, only the larger parts prominent beneath; inflorescence terminal, cymose, few-flowered; peduncles obsolete; cyme-branches flattened, nigraceous, peduncle-like, 2.5--3.5 cm. long, glabrous; pedicels slender, flattened, nigraceous, 3--4 mm. long, glabrous; foliaceous bracts absent; bractlets and prophylla linear-setaceous, 2--7 mm. long, nigraceous, glabrous; calyx subcoriaceous, obconic, nigraceous, 3--4 cm. long, 1--1.3 cm. wide, glabrous, not at all venose, its rim deeply 5-lobed, the lobes ovate, erect, firm, about 8 mm. long, apically attenuate-acute.

The type of this unique, apparently endemic species, of which neither corolla nor fruit is known to me, was collected by Henri Perrier de la Bathie (no. 10240) in a forest in the vicinity of Analazaoatra, in east-central Madagascar, in January (apparently in bloom), 1932, deposited in the Paris herbarium. Because of the lack of corolla and the essential organs, the systematic position of this taxon must remain problematic, although the Paris botanists, well acquainted with the Madagascar flora, are of the opinion that it is a species of this genus. It is known thus far only from the original collection.

Citations: MADAGASCAR: Perrier 10240 (E--photo of type, F--photo of type, Ld--photo of type, N--fragment of type, N--photo of type, P--type).

CLERODENDRUM BRUNSVIGIOIDES J. G. Baker, Journ. Linn. Soc. Lond.

Bot. 21: 435 [as "Clerodendron"]. 1885; Mold., Revist. Sudam. Bot. 8: 170. 1950.

Synonymy: *Clerodendron? brunsvigioides* J. G. Baker, Journ. Linn. Soc. Lond. Bot. 21: 435. 1885.

Bibliography: J. G. Baker, Journ. Linn. Soc. Lond. Bot. 21: 435. 1885; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 560. 1893; Mold., Revist. Sudam. Bot. 8: 170. 1950; Mold. in Humbert, Fl. Madag. 174: 153, 217, 221-222, & 266, fig. 35 (5). 1956; Mold., Résumé 155 & 448. 1959; Mold., Fifth Summ. 1: 259 (1971) and 2: 862. 1971; Mold., Phytol. Mem. 2: 248 & 534. 1980; Mold., Phytologia 58: 188. 1985.

Illustrations: Mold. in Humbert, Fl. Madag. 174: 217, fig. 35 (5). 1956.

An erect shrub; branches and branchlets very slender, more or less obtusely tetragonal, light-gray, glabrescent, not noticeably lenticellate; twigs very slender, brownish, obscurely pilose or stribose with brownish antorse hairs, glabrescent in age; nodes not annulate; principal internodes mostly very much abbreviated, 0.6-2.5 cm. long; leaves decussate-opposite; petioles slender, 4-8 mm. long, mostly extremely abbreviated, densely short-strigose like the twigs, canaliculate above, often submargined; leaf-blades thin-membranous, fragile in drying, rather uniformly green on both surfaces or slightly lighter beneath, dark-brunnescent in drying, narrowly elliptic [not oblong and moderately firm as stated by Baker], 4.5-11.5 cm. long, 1.7-3.6 cm. wide, apically acute or slightly acuminate, marginally entire, basally gradually attenuate or long-acuminate, glabrous and shiny above, very sparsely and obscurely strigillose on the larger venation beneath, otherwise subglabrate; midrib very slender, flat above, prominulous and short-strigose beneath; secondaries very slender, 6 or 7 per side, flat above, very slightly sub prominulous beneath, arcuate-ascending, sometimes conspicuously arcuate-joined near the margins beneath; vein and veinlet reticulation mostly very obscure or indiscernible on both surfaces; flowers mostly solitary, rarely 2 per peduncle, axillary, mostly shorter than the mature subtending leaf, borne at the tips of the twigs; peduncles subfiliform, to 7.5 cm. long, sparsely and obscurely strigillose with short antorse hairs, glabrescent in age, ascen-

ding-divergent; pedicels mostly 1--3 mm. long, comparatively stoutish, strigillose; bracts, bractlets, and prophylла absent or caducous; calyx obconic-infundibular, thin-membranous, 1.5--2 cm. long, apically to 1 cm. wide, externally antrorsely strigillose, its rim deeply 4-lobed, the lobes erect, ovate, about 5 mm. long and (basally) wide, apically acute; corolla hypocrateriform, its tube infundibular, about 3 cm. long, externally glabrous, basally (within the calyx) cylindric, gradually ampliate from above the top of the calyx to its apex, the limb to 3 cm. in diameter, 5-lobed, the lobes subequal, orbicular, imbricate, about 1.3 cm. long and wide, apically rounded; stamens and style included in the corolla-tube, not exserted.

This endemic species is based on Baron 2716 from between Antsiranana and the east coast, Madagascar, deposited in the Kew herbarium. Baker (1885) notes that the species is "Near *C. petunioides*". It is said to inhabit forests at middle altitudes, flowering in July and August. To distinguish it (and the preceding species) from other Madagascar taxa, see under *C. baronianum* Oliv. in the present series of notes.

Citations: MADAGASCAR: Baron 2716 (F--photo of type, K--type, Ld--photo of type, N--fragment of isotype, N--photo of type, P--isotype); Herb. Mus. Paris s.n. (P).

CLERODENDRUM BUCHANANI (Roxb.) Walp., Repert. Bot. Syst. 4: 108 [as "Clercendron"]. 1845; Steud., Nom. Bot. Phan., ed. 2, 1: 382. 1840.

Synonymy: *Volkameria buchananii* Roxb., Hort. Beng., imp. 1, 46 hyponym. 1814. *Clerodendrum buchananii* Roxb. ex Wall., Numer. List 82, no. 2653. 1831. *Volkameria buchanani* Roxb., Fl. Indica, ed. 2, imp. 1, 3: 60. 1832. *Clerodendron buchanani* (Roxb.) Walp., Repert. Bot. Syst. 4: 108. 1845. *Clerodendron buchanani* Wall. ex Voigt, Hort. Suburb. Calcut. 466. 1845. *Clerodendron blumeanum* Schau. in A. DC., Prodr. 11: 669. 1847 [not Hall. f., 1923, nor Val., 1921]. *Clerodendron buchananii* Walp. apud Hassk., Retzia 60. 1855 [not *C. buchaninii* Walp. apud H. J. Lam, 1919]. *Clerodendron infortunatum* Blume ex Fern.-Villar in Blanco, Fl. Filip., ed. 3, 4: Nov. App. 161 in syn. 1880 [not Auct., 1963, nor Blume ex H. Hallier, 1918, nor Bot. Reg., 1895, nor Dennst., 1893, nor Gaertn., 1885, nor Lam, 1947, nor L., 1753, nor Lour., 1793, nor Schau., 1847, nor F.-Vill., 1882, nor Walp., 1843, nor R. Wight, 1850]. *Clerodendron buchanani* Roxb. apud C. B. Clarke in Hook. f., Fl. Brit. India 4: 596. 1885.

Clerodendron buchananii Herb. Roxb. apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 560. 1893. *Clerodendrom blumeanum* Schau. apud Boorsma, Meded. Lands Plant. 31: 7 sphalm. 1899. *Clerodendron buchanani* Walp. apud Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: viii in syn. 1921. *Clerodendron buchanani* var. *typica* Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 91-92. 1921. *Clerodendron foetidum* Miq. ex Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 91 in syn. 1921 [not Bunge, 1833, nor D. Don, 1825, nor *Clerodendrum foetidum* Hort., 1853]. *Clerodendron infortunatum* Murray ex Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 91 in syn. 1921. *Cherodendron blumeanum* Schau. a-

pu H. J. Lam in Lauterb., Engl. Bot. Jahrb. 59: 28 sphalm. 1924.
Clerodendron buchanani var. *typicum* Bakh. ex Hochr., Candollea 5: 193. 1934. *Clerodendrum buchanani* (Roxb.) Walp. ex Mold., Known Geog. Distrib. Verbenac., ed. 1, 63-65, 68, 69, & 89. 1942.
Clerodendron buchananii Roxb. ex Mold., Alph. List Inv. Names Suppl. 1: 6 in syn. 1947. *Clerodendrum blumeanum* Schau. ex Mold., Résumé 271 in syn. 1959. *Clerodendron blumeana* Schau. apud Uphof, Dict. Econ. Pl., ed. 2, 137. 1968. *Clerodendrum buchanani* Walp. ex Capuron, Adansonia, ser. 2, 12: 48. 1972. *Clerodendrum buchananii* var. *buchananii* Fosberg, Sachet, & Oliv., Micronesica 15: 234. 1979.
Clerodendron blumeum Elias in Bentley & Elias, Biol. Nectaries 245 sphalm. 1983.

Bibliography: Roxb., Hort. Beng., imp. 1, 46. 1814; Wall., Numer. List [82], no. 2653. 1831; Roxb., Fl. Indica, ed. 2, imp. 1, 3: 60. 1832; Steud., Nom. Bot. Phan., ed. 2, 1: 382. 1840; Voigt, Hort. Suburb. Calcut. 466. 1845; Walp., Repert. Bot. Syst. 4: 100, 101, & 108-109. 1845; Schau. in A. DC., Prodr. 11: 657, 669-670, & 672. 1847; Hassk., Retzia 60. 1855; Buek, Gen. Spec. Syn. Candoll. 3: 105 & 502. 1858; Miq., Fl. Ned. Ind. 2: 881. 1858; Firminger, Man. Gard. India, ed. 3, 524. 1874; Roxb., Fl. Indica, ed. 2, imp. 2, 478. 1874; Naves & Fern.-Villar in Blanco, Fl. Filip., ed. 3, 4: Nov. App. 161. 1880; C. B. Clarke in Hook. f., Fl. Brit. India 4: 596. 1885; Maxim., Bull. Acad. Imp. Sci. St.-Pétersb. 31: 84. 1886; Kuntze, Rev. Gen. Pl. 2: 505. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 560 (1893) and imp. 1, 2: 1219. 1895; Boorsma, Meded. Lands Plant. 31: 7 & 122. 1899; Koort. & Valet., Meded. Lands Plant. Bog. 42 [Beijdr. Boomsart. Java 7]: 212. 1900; Nieuwenhuis, Ann. Jard. Bot. Buitenz. 21: 258-259, pl. 29, fig. 77-79. 1907; Valet., Bull. Dept. Agric. Ind. Ned. 10: 52. 1907; Woodrow, Gard. Trop., ed. 1, [Gard. India, ed. 6, imp. 8], 437. 1910; Wehmer, Pflanzenst., ed. 1, 648. 1911; Koord., Exkursionsfl. 3: 138. 1912; Backer, Tropische Natur 5: 93. 1916; Heyne, Nutt. Plant. Ned. Ind., ed. 1, 4: 119 & xxii. 1917; H. Hallier, Meded. Rijks Herb. Leid. 37: 78-80. 1918; H. J. Lam, Verb. Malay. Arch. 299-300 & 363. 1919; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 76, 91, 92, 108, & viii. 1921; E. D. Merr., Bibl. Enum. Born. Pl. 516. 1921; E. D. Merr., Enum. Philip. Flw. Pl. 3: 406. 1923; Bakh. in Bakh. & Lam, Nova Guinea 14 Bot. 1: 171. 1924; H. J. Lam in Diels, Engl. Bot. Jahrb. 59: 29. 1924; H. J. Lam in Lauterb., Engl. Bot. Jahrb. 59: 97. 1924; Heyne, Nutt. Plant. Ned. Ind., ed. 2, 1: 24 (1927), ed. 2, 2: 1321 (1927), and ed. 2, 3: 1646. 1927; Stapf, Ind. Lond. 2: 238. 1930; Wehmer, Pflanzenst. 2: 1024. 1931; Fedde & Schust., Justs Bot. Jahresber. 53 (1): 1073. 1932; Kanehira, Fl. Micrones. 457. 1933; Hochr., Candollea 5: 193 [Pl. Hochr. 3: 19]. 1934; Wilder, Fl. Makatea 41-42. 1934; Bakh., Journ. Arnold Arb. 16: 70-71. 1935; Christoph., Bern. Bishop Mus. Bull. 128: 193. 1935; E. D. Merr., Trans. Amer. Philos. Soc., ser. 2, 24 (2): [Comment. Lour.] 338 & 420. 1935; Fedde & Schust., Justs Bot. Jahresber. 60 (2): 572. 1941; Mold., Suppl. List Comm. Names 2, 11, 12, 14, 16, 20-22, & 24. 1941; Holthuis & Lam, Blumea 5: 103, 108, 112, 120, 133, & 235-236. 1942; Kanehira & Hatusima, Bot. Mag. Tokyo 56: 113. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 63-65, 68, 69, & 89. 1942; H. J. Lam, Blumea 5: 235-236

& 768. 1945; Mold., *Phytologia* 2: 98. 1945; Mold., *Alph. List Cit.* 1: 46, 210, & 221. 1946; Mold., *Alph. List Inv. Names* 6 & 29. 1947; H. N. & A. L. Mold., *Pl. Life* 2: 50 & 62. 1948; Mold., *Alph. List Cit.* 2: 531, 563, 602, 618, 625, 629, & 630 (1948), 3: 668, 740, 764, 893, & 964 (1949), and 4: 1154, 1237, & 1252. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 142--148, 150, 151, 158, & 180. 1949; Mold. in Humbert, *Fl. Madag.* 174: 149, 177, 266, & 267. 1956; Mold., *Résumé* 56, 60, 61, 186, 187, 194, 197, 198, 200, 203, 204, 206, 207, 212, 215, 261, 263, 264, 268, 269, 272, 274, & 448. 1959; Yunker, Bern. Bishop Mus. Bull. 220: 233. 1959; Santapau, *Bull. Bot. Surv. India* 3: 14. 1961; Mold., *Résumé Suppl.* 3: 22, 23, 25--28, & 31. 1962; F. White, For. Fl. North. Rhodes. 365. 1962; Graf, *Exotica* 3: 1481 & 1577. 1963; Backer & Bakh., *Fl. Java* 2: 610. 1965; Mold., *Résumé Suppl.* 12: 8. 1965; Burkhill, *Dict. Econ. Prod. Malay Penins.* 1: 590. 1966; J. J. Jiménez, Cat. Fl. Doming. Suppl. 1: 212. 1966; Whitmore, Guide For. Brit. Solum. Isls. 173. 1966; Mold., *Résumé Suppl.* 15: 7, 8, 12--14, 17, & 18 (1967) and 16: 19. 1968; Uphof, *Dict. Econ. Pl.*, ed. 2, 137. 1968; Mold., *Résumé Suppl.* 18: 9. 1969; Hartwell, *Lloydia* 34: 386. 1971; Mold., Fifth Summ. 1: 102, 108, 109, 321, 322, 329, 331, 333, 335, 338, 341, 358, 440, 447, & 460 (1971) and 2: 732, 793, 862, & 971. 1971; Capuron, *Adansonia*, ser. 2, 12: 48. 1972; Farnsworth, *Pharmacog. Titles* 7 (4): vi & 222. 1972; Foreman, Div. Bot. Dept. For. N. Guin. Bot. Bull. 5: 63. 1972; Hartley, Dunstone, Fitzg., Johns, & Lamberton, *Lloydia* 36: 293. 1973; Mold., *Phytologia* 26: 248. 1973; Farnsworth, *Pharmacog. Titles* 9 (1): vi. 1974; [Farnsworth], *Pharmacog. Titles* 7, Cum. Gen. Ind. [31]. 1975; Kooiman, Act. Bot. Neerl. 24: 462. 1975; Mold., *Phytologia* 31: 391. 1975; Lewis & Elvin-Lewis, *Med. Bot.* 344, 347, 491, & 514. 1977; Mold., *Phytologia* 36: 48. 1977; Fournet, *Fl. Illust. Phan. Guad.* 1413 & 1417. 1978; Fosberg, Sachet, & Oliv., *Micronesica* 15: 234. 1979; Holm, Pancho, Herberger, & Plucknett, *Geogr. Atlas World Weeds* 91. 1979; A. L. Mold., *Phytologia* 41: 302. 1979; Fosberg, Falanruw, & Sachet, *Micronesica* 16: 213. 1980; Fosberg, Otaped, Sachet, Oliv., Powell, & Canfield, *Vasc. Pl. Palau* 38. 1980; Mold., *Phytol. Mem.* 2: 95, 100, 101, 311, 312, 320, 322, 323, 325, 328, 330, 331, 348, 384, 390, 461, & 534. 1980; Roxb., *Hort. Beng.*, imp. 2, 46. 1980; Hartwell, *Pl. Used Against Cancer* 2: 659. 1982; Elias in Bentley & Elias, *Biol. Nectaries* 197 & 245. 1983; Mold., *Phytologia* 52: 466. 1983; H. N. & A. L. Mold. in Dassan. & Fosb., *Rev. Handb. Fl. Ceyl.* 4: 446, 462, & 473. 1983; Mold., *Phytologia* 57: 38 & 408 (1985) and 58: 186, 196, 197, & 204. 1985.

A tall, erect, ornamental, very showy shrub or subshrub, 1--3 m. tall, sometimes herbaceous or bushy; stems erect, rather stout, rather acutely tetragonal, minutely and obscurely pulverulent-puberulent, often flattened at the nodes and decussately sulcate on the internodes, myrmecophilous; branches few, opposite, divaricate; nodes annulate, often marked by a light band of longer hairs; principal internodes abbreviated, about 2.5 cm. long; leaves decussate-opposite, large, numerous; petioles stout, terete, 13--16 cm. long, usually collapsing at the base and apex when drying, densely but minutely and obscurely pulverulent-puberulent throughout; leaf-blades membranous, very brittle and fragile when dry, ovate or broadly ovate

to cordate-ovate, bright-green above, paler beneath, 14--30 cm. long, 9--20 cm. wide, mostly 1½--1 3/5 times as long as wide, apically regularly attenuate-acute or acuminate, marginally entire or sinuate and minutely apiculate-toothed, basally deeply cordate, very minutely puberulent-roughened and also more or less scattered-pilose above, more densely so beneath, not scaly; midrib flat and densely puberulent above, stout, red, and rounded-prominent beneath; secondaries slender, 6--8 per side, arcuate-ascending, flat and densely puberulent above, usually 2 or 4 issuing from the very base of the blade, reddish beneath; tertaries rather distant; veinlet reticulation indiscernible above; inflorescence terminal, paniculate, 5--20 cm. long, erect; peduncles acutely tetragonal, continuous with and similar to the adjacent stem, 2--10 cm. long, red, villous; rachis similar to the peduncle; sympodia abbreviated; inflorescence-branches slender, flattened, ascending; bracts borne in pairs subtending the lowermost inflorescence-branches, foliaceous, the uppermost ones linear and only 2--6 mm. long, red, puberulent or villous; individual cymes 7--15-flowered; young buds 3--5 mm. in diameter; pedicels villous, red; calyx fleshy, carmine or orange, 3--5 mm. long, the 5 segments narrow-lanceolate, appressed, basally at most 1.5 mm. wide; corolla bright-red or fire-red to scarlet or carmine, rarely light-yellow, the tube 1.2--3 cm. long, 5--6 times as long as the calyx, the lobes 7--15 mm. long, 4--5 mm. wide; exserted portion of the stamens 2--2.5 cm. long, about twice as long as the corolla-lobes; filaments pink; anthers sordid-red; style pink or red, 3--4 cm. long; stigma dark-red or yellow; fruiting-calyx often eventually enlarged, enclosing only the lower part of the fruit, fleshy, red or bright-red to scarlet or orange; fruit drupaceous, at first green or dark-green, later orange or bright-blue, turquoise or blue-violet to black, 8--9 mm. wide, apically 4-lobed; seed bitter, not poisonous, containing no alkaloids.

This species is based on an unnumbered Buchanan collection in the East India Company herbarium at Kew; *C. blumeum* is based on Blume s.n. and Zollinger 747 from Java. The *Clerodendron infortunatum* accredited to Auct. in the synonymy (above), to Bot. Reg., to Dennstedt, to Gaertner, and to Linneus (ex parte Rumpf) are all synonyms of *Clerodendrum infortunatum* L., while that accredited to Blume (1918), to Loureiro (in part), and to Schauer are *C. viscosum* Vent.; the homonyms accredited to Walpers and to Wight (1850) are *C. villosum* Blume; that credited to Loureiro (in part) is *C. kaempferi* (Jacq.) Sieb.; that credited to Lamarck is *C. petasites* (Lour.) S. Moore; and that credited to Fernandez-Villar is *C. minahassae* Teijsm. & Binn. The *Clerodendrum infortunatum* credited to Gaertner and to Ventenat are *C. infortunatum* L., while the homonym credited to Auct., to "Auct. non Linn.", to Miquel, and to Willdenow are *C. viscosum* Vent. The homonym credited to Linneus (ex parte Rheede), to Wight, and to Dennstedt are *C. villosum* Blume, while the homonym credited to Lindley is *C. speciosissimum* Van Geert.

The *Clerodendron foetidum* of Don is *Caryopteris foetida* (D. Don) Thellung, that of Bunge is *Clerodendron bungei* Steud., and the *Clerodendrum foetidum* Hort. is *C. lindleyi* Decaisne. The *Clerodendron blumeum* and *Clerodendrum blumeanum* of Valeton are *C. specio-*

sissimum Van Geert. and the *Clerodendron blumeanum* credited to Hallier is a synonym of *Clerodendrum intermedium* Cham. It should also be noted here that the *C. buchanani* var. *fallax* (Lindl.) Bakh. is now by me regarded as a synonym of *C. speciosissimum*, as is also *C. blumeanum* var. *typicum* H. J. Lam; *C. blumeanum* var. *horsfieldii* (Miq.) Kuntze is treated by me as *Clerodendrum horsfieldii* Miq., which see.

Jackson (1895) reduces *Volkameria buchanani* Roxb. to *Clerodendrum foetidum*, by which he probably meant *C. foetidum* Bunge, now known as *C. bungei* Steud., but these two taxa are quite distinct.

The species with which *C. buchanani* is most easily confused and which most closely resembles it is *C. speciosissimum* Van Geert. Numerous collections have in the past been identified as *C. buchanani* by many authors, including myself, which actually represent *C. speciosissimum* instead. The two taxa are best distinguished as follows:

1. Calyx 3--5 mm. long, with narrow-lanceolate and appressed lobes; corolla-tube 5--6 times as long as the calyx, the corolla-lobes 7--10 mm. long, 4--5 mm. wide; young buds 3--5 mm. in diameter; stamens twice as long as the corolla-lobes, 2--2.5 cm. long; style 3--4 cm. long.....*C. buchanani*.
- 1a. Calyx 7--12 mm. long, with ovate or deltoid spreading lobes; corolla-tube 3--4 times as long as the calyx, the lobes 1--2.5 cm. long and to 10 mm. wide; young buds 7--12 mm. in diameter; stamens 3 times as long as the corolla-lobes, 4--6 cm. long; style 6--7 cm. long.....*C. speciosissimum*.

Lam (1919) reduces *Clerodendron buchanani* Walp. to *Caryopteris grata* [now known as *C. foetida* (D. Don) Thellung]. Walpers (1845) includes under *Clerodendron buchanani* the following: *Volkameria coccinea* Herb., *V. kaempferi* Jacq., and *Clerodendron coccineum* Hort., all names now included by me in the synonymy of *Clerodendron kaempferi* (Jacq.) Sieb.

Merrill (1921) adopts *C. blumeanum* Schau. as the accepted name for what I regard as *C. buchanani* (Roxb.) Walp.

Collectors have encountered *C. buchanani* in open and disturbed lowland forests, secondary forests and young secondgrowth rainforests, frequent on beaches and in beach forests, in brushwood and village groves, the inside of craters, the edges of high rainforests, marshy ground near streams, and in shaded places and secondgrowth in general, from sealevel to 2000 m. altitude, in flower in every month of the year, and in fruit in January, April, July, August, September, and December.

The corollas are described as having been "red" on Boden-Kloss 11640, Brass 24446, Buwalda 4991, Posthumus 556, and Yates 848, "orange-red" on Oldeman & Maurice M.22 and Seibert 1771, "orange", on Essig LAE.55013, "scarlet" on Hochreutiner 1110, and "light-yellow" on DeBruyn 282.

Especially typical ovate leaf-blades are seen on Backer 1850 & 25464, Bakhuizen 465 & 639, Boden-Kloss 14640, Blinnemeijer 6018, Hallier B.21 & B.114, Jacobson 2660, Kobus s.n., Mjöberg 173, Mondi 39, Posthumus 556 & 713, Soegandiredja 85, 129, & 206, Van Steenis 802 & 3939, and Yates 848 and distinctly cordate on Atje 309.

Vernacular names reported for *C. buchanani* are "andiliára",

"aoepaloelan mahina", "arka-koo", "aupaloelan mahina", "aux zalba", "balantaná", "bantana", "kallon ranteh", "keh neno", "kembang boegang", "kémbang boegang", "kembang boogang", "koikoi", "kolon ranteh", "malati", "maroerang", "mata ajam", "oema abmôta", "orawari rungkup", "panggil-panggil", "pansarâng'a", "patjah piring", "singoep", "tadjoer", "tilangit", "tintinga", "tittinga", "waroe dojong", and "waroe dujong".

Hallier (1918) asserts that the species is used in the treatment of fevers; Wehmer (1931) avers that the bitter seeds contain no poisonous alkaloid. Burkhill (1966) reports that in Java magic properties are attributed to the plant and that in Amboina newly born babies are ceremoniously washed in a leaf decoction made from the plant. Uphof (1968) tells us that the crushed leaves are used in native medicines to treat dysentery, the roots to counteract snake-bites, especially of certain vipers, and a paste made from the leaves is applied to wounds caused by burns. Hartwell (1971) reports that in Indonesia the leaves are used as a poultice in treating tumors. Lewis & Elvin-Lewis (1977) also report the use of a leaf paste in treating burns in Malaya and the roots for snakebites.

Heyne (1917), calling the plant *C. blumeanum*, speaks of it as follows: "Opgerichte heester, 1 tot 2 M. hoog, in West-Java groeiend tusschen 70 en 800 M. zeehoogte in bosschen en schaduwrijke struik-wildernissen (Backer, Tropische Natuur 1916, bl. 93) Rumphius beschrijft hem (IV. bl. 108) onder den naam van *Petasites agrestis* en zegt, dat hij velerlei nut heeft in de medicijnen. Op Banda gebruikt men den wortel tegen oepas, die gepaard gaat met steken in de zijde en braken. Tegen dysenterie mengt men hem fijngewreven onder het eten, of kookt hem met de jonge loten even op in versche sagoëher, die men daarna drinkt. In de Oeliassers komt een soort van adder voor, waarvan de beet doodelijk is, tenzij men dadelijk den wortel van deze plant kauwt, het sap daarvan ten deele inslikt en met het overige het mondje verbindt: daarop moet braken volgen, wil het middel helpen. Thuis komende moet men de bladeren warm maken, 't sap innemen en ook op de wond smeren. Deze bladderen, met klapperolie bestreken warm gemaakt en op den buik gelegd, verzachten een verharden buik en winderig koliek. Een papje ervan geneest brandwonden en brengt gezwellen en bloedvinnen tot rijpheid. Men geeft ze ook in tegen koorte en om de ambonsche pokken (framboesia) uit te frijven en gebruikt ze naderhand uitwendig om die te doen opdrogen. Met curcuma gesmeerd, warm gemaakt en opgelegd, doen ze een gezwollen milt slinken. Zoowel de bladeren van deze soort als die van *Clorodendron Rumphianum*, De Vr. worden door de ambonsche vroedvrouwen veel gebruikt om in het warme water te doen, waarmede pasgeboren kinderen worden gewassen, voorgevende, dat dit niet alleen dient om de kinderen te reinigen, maar ook om ze voorspoedig te doen opgroeien (Rumph.)." It seems probable that at least the Rumpf references here apply to *C. speciosissimum* rather than to *C. buchanani*.

Kuntze (1891) records *C. buchanani*, perhaps from cultivation only in Java; Fernandez-Villar (1880) lists it from Panay island in the Philippines. Hallier (1918) found it growing with *Stephania* and *Cucurbitaceae* near Manila; Rumpf reports it wild on "all" of the Amboina and Banda islands. Merrill (1923) excludes it from the native Philippine flora. Canfield describes it as an uncommon shrub in open

forests on volcanic humus, growing in association with *Artocarpus*, *Citrus*, *Morinda*, *Guettarda*, *Areca*, *Cocos*, *Musaenda*, and *Alpinia*. Duss reports it both cultivated and wild (escaped) in Antigua, Martinique, and Guadeloupe; Hahn lists it as "perhaps" introduced in Martinique; Seibert found it wild in Haiti. It is, however, very probable that some, if not all, these references apply to *C. speciosissimum*, rather than to *C. buchanani*. The "*C. buchanani*" of Woodrow (1910) is certainly a misidentification for *C. speciosissimum*. The illustration given by Graf (1963), labeled as depicting *C. buchanani*, actually depicts *C. paniculatum* L. Fosberg and his associates (1979) assert that *C. buchanani* is not known "in its typical form" in Micronesia -- they regard *C. blumeanum* as a synonym of what we call *C. speciosissimum*. Burkhill (1966) includes *C. fallax* Lindl. in the synonymy of *C. buchanani*, but I regard it as a synonym of *C. speciosissimum*.

Voigt (1845) reports *C. buchanani* cultivated in Calcutta. Valeyton (1907) cites *Clerodendron infortunatum* Blume, *C. papuanum* Scheff., and *C. fallax* "Lindl. non Schau." as synonyms of *C. blumeanum* -- I regard at least the last two of these as synonyms of *Clerodendrum speciosissimum*.

Hallier (1918) includes *C. fallax* Lindl., *C. pulchrum* Fawc., and *Petasites agrestis* Rumpf in his concept of *C. buchanani*, so probably his citations are in part, at least, referring to *C. speciosissimum*. He cites: from Sumatra Beccari 820, Hallier B.21 & B.114 and Korthals s.n.; from Borneo Korthals s.n.; from Java Blume s.n., Hallier 276 and Raap 526; from Lombok Elbert 591, 676, 901, 968, 1006, 1684, 1740, 1812, 1836, 1882, & 2095; from Sumbawa Colfs 130, Elbert 3538, 3982, & 4428, and Grundler 4053, 4163, 4202, & s.n. [Elbert 4029]; from Buton Zippelius 32a; from Tukang-besi Elbert 2545; from Wetar Elbert 4491, 4510, 4567, & 4622; from Banda Herb. Lugd.-Bat. s.n.; from Amboina Forsten s.n.; from northwestern New Guinea Atasrip 57; from Luzon Hallier 3519; and from Timor Forbes 3604.

Lam (1919) cites the following, but probably all of these actually apply to *C. speciosissimum*: Dahl 117, Docters van Leeuwen-Reijndervaan 1375 & 1630, Elbert 591, 676, 2095, & 3982, Gibbon 1201, Gjellerup 422 & 695; Lauterbach 1193, Ledermann 6938, 10808, & 14133, Peckel 197, Raymundus 41, Schlechter 14273 & 16402, Volkens 130, 157, & 500, and Weinland 60.

Bakhuisen (1921) includes *C. papuanum* Scheff., *C. puberulum* Merr., *C. fallax* Lindl., *C. foetidum* Miq., *Caprifolium scarlatinum* Noronha, and *Petasites agrestis* Rumpf in the synonymy of *C. buchanani*, but at least 4 of these are regarded by me as *C. speciosissimum* Van Geert and the Merrill taxon is a valid one. Bakhuisen cites from Java, Sumatra, Banka, Borneo, Celebes, the Moluccas, and New Guinea the following, most of which, at least, probably are *C. speciosissimum* instead: Atasrip 57, Atje 96 & 309, Backer 770, 1850, 6999, 10357, 14379, 23118, & 25464, Bakhuisen 639, 1081, 1115, 1393, & 4047, Boenlage 16, 250, & 410, Blinnemeijer 2426, Cramer 96, Hallier 47, Jacobson 74, 116, & 2660, Jodner 321, Koorders 24453 & 30748, Raap 106, 479, & 667, Robinson 303, Teijsmann 12265, and Van Vuuren 16. Merrill (1921) cites Korthals s.n. from Karimantan and Native collector 437 & 1375 and Herb. Philip. Bur. Sci. 1674 from Sarawak.

Lam (1924) cites Gibbon 1201, Ledermann 13133, and Raymundus 41 from Koror, Volkens 130, 157, & 500 from Yap, Lauterbach 1193, Ledermann 6938 & 10808, and Schlechter 14273 & 16402 from northeastern New Guinea, Dahl 117 from New Britain, and Peekel 197 from New Ireland, but, again, most, if not all, of these specimens are probably *C. speciosissimum*. Bakhuizen (1924) cites Atasrip 57, DeBruyn 282, and Teijssmann 7793 from West Irian, listing the species also from India, Malaya, and the Philippines. In his 1932 work he cites Brass 3465 and Kajewski 1606 & 2222 from Bougainville, San Cristoval, and Ysabel islands. Wilder (1934) asserts that *C. buchanani* has been introduced on Makatea island and has escaped from cultivation and "may become a troublesome weed." Christophersen (1935) cites Bryan 105, Christophersen 970, Eames 10, and Garber 699 as representing what he calls *Clerodendron blumeanum* var. *typicum* from Tau, Upolu, and Savaii islands, but these, instead, probably all are *Clerodendrum speciosissimum*.

Lam & Meeuse (1942) cite Holtuis 2485, 3094, & 3414 from Karake-long, Salababoe (cultivated), and Miangas, giving the overall distribution of the species as Sumatra, Banka, Java, Borneo, Celebes, Talaud, the Moluccas, and New Guinea, but it is, again, most probable that the specimens which they cite represent *C. speciosissimum*. Kanehira & Hatusima (1942) cite their no. 12900, giving the species' distribution as Malaya to the Bismark Archipelago, Melanesia, and western Micronesia. Whitmore (1966) cites Brass 3140, Rechinger 3931, 4077, & 4430, and Waterhouse 1/314 from the Solomon Islands; Jiménez (1966) cites Seibert 1771 from Haiti; Hartley and his associates (1973) cite nos. 10198 & 10598. Foreman (1972) cites Kajewski 1606 & 2222, Rechinger 3931, 4077, & 4430, and Schodde & Craven 469 from Bougainville island.

In view of the great confusion in literature and herbaria in regard to this taxon, it may be worthwhile to repeat here the original (1832) description of Roxburgh's *Volkameria buchanani*: "Shrubby, erect. Leaves cordate, entire, downy. Corymbs terminal. Calyx shorter than the succulent berries, and reflected back from them. A shrub, received from Dr. Buchanan at Luckipore where the plant is found wild. The same plant was afterwards received from the Moluccas. Flowering time the close of the rains; the seed ripens in January. Stem erect, with few expanding, opposite branches. Young shoots downy, and somewhat four-sided. Leaves opposite, petioled, cordate, entire, downy on both sides, from four to six inches long, and from three to four broad. Corymbs terminal, bearing many, pretty large, deep scarlet coloured flowers. Peduncles and pedicels villous and coloured. Bractes small, coloured, and villous. Calyx five-cleft, small and pretty smooth. Corol; [sic] tube slender, five or six times longer than the calyx, (this mark alone distinguishes it from *Volkameria infortunata*.) Border of five, equal, erect, unilateral divisions. Berry four-lobed, four-celled, sitting on the reflexed, bright red coloured, permanent calyx; when ripe of a dull bluish purple colour." [The fruits, of course, are drupes, not berries].

Hochreutiner (1934) says of his no. 1110 from Java: "Nos spécimens de Java sont identiques au type de l'Herbier de Candolle. Le nom indigene ["tilangit"] nous a été donné par un javanais sur les con-

naissances duquel nous avons quelques doutes. Le spécimen de Samoa qui est peut-être échappé des jardins est une forme plus velue, à panicule plus divariquée. Il semble intermédiaire entre le *C. Buchananii* et le *C. speciosissimum* mais il a le calice réduit du premier."

Nieuwenhuys (1907), speaking of what he calls *C. blumeanum*, says: "Die Nektarien dieser Spezies befinden sich wie bei der vorigen: 1. auf den Blättern, 2. auf den Kelchen (Taf. XXIX, Fig. 78 u. 79). Die Sekretion findet auch hier aus becherförmigen Trichomen statt, doch stehen diese zerstreut auf den Blättern sowohl an der Ober- als an der Unterseite. Es sezernieren die Drüsen der jüngsten und jungen Blätter, sowie die der Knospen und Blüten. Die endständigen, weiss und rosafarbigen Blüten fruktifizieren. Der Ameisenbesuch ist lebhaft. Auf den Blättern verursachen Läuse einigen Schaden, andere Feinde beobachtete ich nicht. Auch diese Art ist nach Angabe von Koorders u. Valeton (Miquel) auf Java heimisch." It would appear that the plant which he is here describing is not *C. buchanani*.

Clarke (1885) cites the Wallich reference (1831) as "no. 2652" instead of 2653. The Foreman (1972) reference in the bibliography of this species (above) is sometimes cited by the titlepage date of "1971"; similarly, the Lam (1924) reference is sometimes cited as "1925", but the latter is merely the titlepage date for the volume -- the page in question appeared in 1924.

Material of *Clerodendrum buchanani* has been misidentified and distributed in herbaria as *C. blumeanum* var. *horsfieldii* (Miq.) Kuntze, *C. blumeanum* var. *typicum* H. J. Lam, *C. coccineum* Hort. Morr., *C. infortunatum* L., *C. speciosissimum* Van Geert, and *C. squamatum* Vahl. On the other hand, the Herre 86, distributed as typical *C. buchanani*, is *C. buchanani* var. *glabrum* (H. J. Lam) Mold., the Bartlett 6460, 7207, & 7799, Krukoff 4001, Native collector 2013 & 5286, and Toroes 2394, 2528, 2668, 5160, & 16476 bis, distributed as *C. infortunatum* Blume, are actually *C. adenophyllum* H. Hallier, the Toroes 1647 (in part) is a composite, and Biegel 5191, Blume s.n., Christophersen 970, Dugand 4808, Eames 10, Fosberg 58907, Franc 926, Garber 699, Herre 67 & 177, Kanehira 170, 1220, & 2431, Kollmann s.n., Kuntze 4328, Lam 2485 & 3414, J. Scott in South. Rhodes. Govt. Herb. 263465, Takamatsu 1346, and Van Steenis 2383, all distributed as *C. buchanani*, actually are *C. speciosissimum* Van Geert; Hallier s.n. [17.III.1893] and Koorders s.n., distributed as *C. blumeanum*, are *C. confusum* H. Hallier.

Citations: HISPANIOLA: Haiti: Seibert 1771 (N). LEEWARD ISLANDS: Antigua: Duss 12 (N). Dominica: Cooper 176 (N); Lloyd 685 (N). Guadeloupe: Bailey & Bailey 95 (N); Stéhle 452 (N). WINDWARD ISLANDS: Martinique: Duss 4696 (N); Hahn 541 (B); Oldeman & Maurice M.22 (Cy). PALAU ISLANDS: Koror: Canfield 671 (W-2878735), 725, (W-2881444). GREATER SUNDA ISLANDS: Bata: Raap 667 (Bz--18885). Batu: Raap 106 (Bz--18886). Celebes: Riedel s.n. [1874] (Mu--1389, Mu--1390, Mu--1391). Java: Backer 770 (Bz--18820), 1850 (Bz--18789, Bz--18790), 6999 (Bz--18792, Bz--18793, Bz--18794), 10357 (Bz--18819), 14379 (Bz--18816, Bz--18817, Bz--18818, N), 23118 (Bz--18815), 25464 (Bz--18791), 31159 (Bz--18920, Bz--25491), 34704 (Bz--18795); Bakhuizen 465 (Ut--24883A), 639 (Bz--18787), 1057 (Bz--18784, Bz--18785), 1081 (Bz--18807, Bz--18808), 1115 (Bz--18806), 1393 (Bz--

18804, Bz--18805), 4047 (Bz--18786), 5463 (Bz--18781, Bz--18782, Bz--18783), 6393 (Bz--18813), s.n. (Bz--25489); Beumle A.262 (Bz--18780); Blume s.n. (L); Docters van Leeuwen-Reijnvaan 7919 (Bz--18814); Hallier 47 (Bz--18810, Bz--18811); Herb. Hort. Bot. Jav. s.n. (Pd); Hochreutiner 1110 (Ca--41349); Koorders 24453b [63*] (Bz--18821, Bz--18811, Bz--18823, Bz--18824), 30748b (Bz--18815); Lobb 378 (K, Ld--photo, N, N-photo); Scheffer s.n. (Bz--18809); Soegandiredja 85 (Bz--18796, Bz--18797), 129 (Bz--18798, Bz--18799, Bz--18800), 206 (Bz--18801, Bz--18802, Bz--18803); Van Steenis 166 (Bz--18812), 2383 (Bz--18788). Kalimantan: Enoch 293 (Bz--73002); Hallier B.21 (Bz--18776), B.114 (Bz--18775, Ca--236926); Mondi 39 (Bz--18774, N); Teijmann s.n. (Bz--18778, Bz--18779). Kalao-toa: Docters van Leeuwen-Reijnvaan 1375 (Ut--86738). Kangean: Backer 27469 (Bz--18828), 27948 (Bz--18826, Bz--18827, Bz--25555). Lingga: Blinnemeijer 6768 (Bz--18888), 6854 (Bz--18887). Pagi: Boden-Kloss 14640 (Bz--18889, Ca--286884). Pini: Raap 479 (Bz--18884). Sarawak: Kjøberg 173 (Bz--18777, Ca--234206, N); Native collector 437 (Ph), 1375 (Ph, W--1174113). Siantan: Van Steenis 802 (Bz--18892, Bz--18893). Siberut: Iboet 339 (Bz--18891). Sipora: Iboet 389 (Bz--18890). Sumatra: Ajoeb 94 (Bz--18880); Collector undesignated s.n. (Bz--18874); Cramer 96 (Bz--18876), 97 (Bz--18877); Huitema 111a (Bz--18868); Iboet 129 (Bz--18872), 177 (Bz--18870, Bz--18871), 342 (Bz--18873); Jacobson 2660 (Bz--18878, Bz--18879); Jodner 321 (Bz--18875); Posthumus 556 (Bz--18866), 713 (Bz--18865); Van Steenis 3939 (Bz--18861, Bz--18862); Yates 848 (Bz--18869, Ca--226101, Mi). Toedjoeh: Blinnemeijer 6018 (Bz--18894). LESSER SUNDA ISLANDS: Banka: Kobus s.n. (Bz--18883). Lepar: Blinnemeijer 2426 (Bz--18882). Tana Djampeja: Docters van Leeuwen-Reijnvaan 1630 (Ut--86737). Timor: Walsh 249 (Bz--18835). MOLUCCA ISLANDS: Amboina: Boerlage 16 (Bz--18836), 250 (Bz--18837), 410 (Bz--18838); Docters van Leeuwen-Reijnvaan 8661 (Bz--18921); C. B. Robinson 303 (Bz--18841). Ceram: Kornassi 1304 (Bz--18843); Rutten 412 (Bz--18845). Mangole: Bloembergen 4579 (Bz--18847). Sanana: Bloembergen 4307 (Bz--18849, Bz--18850), 4391 (Bz--18848). Taliboe: Atje 309 (Bz--18851, Bz--18852, Bz--18853). Tanimber: Buwalda 4313 (Bz--72576, Bz--72577). AROE ISLANDS: Kobroør: Buwalda 4991 (Bz--72730, Bz--72731). NEW GUINEA: Northeast New Guinea: Esig LAE.55013 (Ba); Schlechter 16402 (S). Papua: Armit s.n. [Mt. Goodenough, 1895] (Mb); Carr 12853 (N); Sayer s.n. [1887] (Mb). West Irian: Aet 181 (Bz--72952), 178 (Bz--72953, Bz--72954); Anta 36 (Bz--72741). NEW GUINEAN ISLANDS: Goodenough: Brass 24446 (Ng--17161). SOLOMON ISLANDS: Bougainville: Frizzi s.n. [1911/12] (Mu); Kusche s.n. [Nov. 1 -- Dec. 28, 1920] (Gg--34497). CULTIVATED: England: Hort. Bot. Reg. Kew. s.n. [1896] (K); Sander & Sons s.n. [18 May 1906] (K, K). Guadalupe: Duss 2395(K). Java: Herb. Hort. Bogor. 25488 (Bz), XV.K.A.XVVI.10 (Bz--26459). LOCALITY OF COLLECTION UNDETERMINED: Collector undesignated 1078 (Ut--86738); Thunberg s.n. (S).

CLERODENDRUM BUCHANANI f. ALBUM Mold., Phytologia 4: 45. 1952.

Synonymy: *Clerodendron buchanani flore albo* Bakh., in herb. *Clerodendron blumeanum flore albo* Backer, in herb.

Bibliography: Mold., Phytologia 4: 45. 1952; Mold., Fifth Summ. 1:

321 (1971) and 2: 862. 1971; Mold., Phytol. Mem. 2: 312 & 534. 1980.

This form differs from the typical form of the species in having white corollas.

The form is based on *Posthumus* 730 from near Bangko, at an altitude of 180 m., Sumatra, collected on August 18, 1925, and deposited in the Buitenzorg herbarium.

Material of this taxon has been distributed in some herbaria as typical *C. buchanani* (Roxb.) Walp. It has been collected at altitudes from sealevel to 1000 m., in flower in August and October.

Citations: GREATER SUNDA ISLANDS: Sumatra: Ajoeb 116 (Bz--18881); *Posthumus* 730 (Bz--18867--type, Ld--photo of type, N--photo of type). MOLUCCA ISLANDS: Ceram: Ruttent 259 (Bz--18844).

CLERODENDRUM BUCHANANI f. BREVIFLORUM Mold., *Phytologia* 4: 45--46. 1952.

Bibliography: Mold., *Phytologia* 4: 45--46. 1952; Mold., Fifth Summ. 1: 329 (1971) and 2: 862. 1971; Mold., *Phytol. Mem.* 2: 320 & 534. 1980.

This form differs from the typical form of the species in having its corolla-tubes only 1 cm. long or less during anthesis.

The form is based on *Rensch-Maier* 294 from Sembaloen, Lombok, in the Lesser Sunda Islands, collected on April 7, 1927, and deposited in the Buitenzorg herbarium.

The form is known thus far (to me) only from the original collection.

Citations: LESSER SUNDA ISLANDS: Lombok: *Rensch-Maier* 294 (Bz--18902--type, Ld--photo of type, N--photo of type).

CLERODENDRUM BUCHANANI var. **GLABRUM** (H. J. Lam) Mold., *Phytologia* 4: 46. 1952.

Synonymy: *Clerodendron blumeanum* var. *glabrum* H. J. Lam, Verbenac. Malay. Arch. 302. 1919.

Bibliography: H. Hallier, Meded. Rijks Herb. Leid. 37: 79--80. 1918; H. J. Lam, Verbenac. Malay. Arch. 302. 1919; Fedde & Schust., Justs Bot. Jahresber. 60 (2): 572. 1941; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 147, 148, & 180. 1949; Mold., Résumé 194, 197, 198, 205, & 448. 1959; Mold., Fifth Summ. 1: 322, 329, 331, & 341 (1971) and 2: 862. 1971; Mold., *Phytol. Mem.* 2: 312, 320, 322, 330, 384, & 534. 1980; Mold., *Phytologia* 58: 196. 1985.

This variety differs from the typical form of the species in having the adult leaf-blades glabrous or subglabrous on both surfaces.

Lam (1919) cites no type for this variety, but indirectly cites Elbert 901, 968, 1006, 1684, 1740, 1812, 1836, & 1882 from Lombok, 3982 from Sumbawa, 4510 & 4567 from Wetar, and Herb. Lugd.-Bat. 6:n. from Banda.

Collectors have found this plant growing from sealevel to 1650 m. altitude, in flower in April, June, July, October, and November, and in fruit in April, describing it as 1.5 m. tall. The corollas are said to have been "red" on Voogd 2042, "rose" on Rensch 144, "cinnabar-red" on Rensch 1266, and "purple-red" on Bloembergen 4136.

The Herre 86, cited below, bears a label giving Espiritu Santo as the locality of collection and another label giving "Malekula Island"

as the locality.

Material of this taxon has been misidentified and distributed in some herbaria as typical *C. buchanani* (Roxb.) Walp. or as *C. blumeanum* Schau., *C. fallax* Lindl., and *C. squamatum* Vahl.

Citations: GREATER SUNDA ISLANDS: Celebes: Bloembergen 4136 (Bz--20958); Noerkas 16 (Bz--18855, Bz--18856); Teijsmann 12265 (Bz--18854). LESSER SUNDA ISLANDS: Bali: Voogd 2042 (Bz--18830). Flores: Posthumus 3303 (Bz--20621, Bz--20622); Rensch 1266 (Bz--18831). Lombok: Rensch 144 (Bz--18901); Voogd 2712 (Bz--18834). Wetar: Bloembergen 3574 (Bz--72644). MOLUCCA ISLANDS: Amboina: Saanan 96 (Bz--18839, Bz--18840). Buru: Rant 512 (Bz--18848). NEW HEBRIDES: Espiritu Santo: Herre 86 [Malekula] (N).

CLERODENDRUM BUCHHOLZII Gürke, Engl. Bot. Jahrb. 18: 176--177 [as "Clerodendron"]. 1893; B. Thomas, Engl. Not. Jahrb. 68: 69 & 95. 1936.

Synonymy: *Clerodendron buchholzii* Gürke, Engl. Bot. Jahrb. 18: 176. 1893. *Clerodendron preussii* Gürke, Engl. Bot. Jahrb. 18: 175. 1893. *Clerodendron kentrocaule* J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 296. 1900. *Siphonanthus costulata* Hiern, Cat. Afr. Pl. Coll. Welw. 4: 843. 1900. *Clerodendron costulatum* K. Schum. apud Prain, Ind. Kew. Suppl. 3: 44 in syn. 1900. *Clerodendron buchholzii* Guerke apud J. H. Holland, Kew Bull. Addit. Ser. 9 [Useful Pl. Nigeria 3]: 523. 1915. *Clerodendron schiffieri* A. Chev., Expl. Bot. Afr. Occ. Franç. 1: 509 nom. nud. 1920. *Clerodendron buckholzii* Gürke apud Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: viii. 1921. *Clerodendrum kentrocaule* Baker apud B. Thomas, Engl. Bot. Jahrb. 68: 69 in syn. 1936. *Clerodendrum preussii* Gürke apud B. Thomas, Engl. Bot. Jahrb. 68: 69. 1936. *Clerodendrum schiffieri* A. Chev. apud B. Thomas, Engl. Bot. Jahrb. 68: 91. 1936. *Clerodendrum muchholzii* Gürke ex Mold., Alph. List Cit. 4: 1153 sphalm. 1949. *Clerodendron buchholzii* Gledhill, Check List Flow. Pl. Sierra Leone 30. 1962. *Clerodendrum buchholzii* Guerke ex Richards & Morony, Check List Fl. Mbala 236. 1969. *Clerodendrum buchholzii* Gürke ex Mold., Fifth Summ. 1: 460 in syn. 1971.

Bibliography: Gürke, Engl. Bot. Jahrb. 18: 175--177. 1893; J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 293, 294, 296--297, 301, 302, & 515. 1900; Durand & DeWild., Compt. Rend. Soc. Bot. Belg. 39: 75. 1900; Durand & DeWild., Mat. Fl. Congo 23. 1900; Gürke, Engl. Bot. Jahrb. 18: 176--177, 192, & 292. 1900; Hiern, Cat. Afr. Pl. Coll. Welw. 4: 843. 1900; K. Schum., Justs Bot. Jahresber. 28 (1): 495 & 496. 1900; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 101. 1901; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 172. 1904; Prain, Ind. Kew. Suppl. 3: 44. 1908; DeWild., Ann. Mus. Cong. Belg. Bot., ser. 5, 3: 467--468. 1912; Holland, Kew Bull. Misc. Inf. Addit. Ser. 9 [Useful Pl. Nigeria 3]: 523. 1915; S. Moore, Journ. Bot. Brit. 54: 290. 1916; Wernh., Journ. Bot. Brit. 54: 230. 1916; A. Chev., Expl. Bot. Afr. Occ. Franç. 1: 509. 1920; DeWild., Bull. Jard. Bot. Brux. 7: 165. 1920; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 95, 108, & viii. 1921; DeWild., Pl. Bequaert. 2: 258 & 264. 1922; Good & Exell, Journ. Bot. Brit. 68, Suppl. 2: 140. 1930; Irvine, Pl. Gold Coast 108. 1930; Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 273

& 275. 1931; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 8, 11-13, 15, 18, 26, 40, 69, & 92. 1936; Dalz., Useful Pl. W. Trop. Afr. 454. 1937; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 101. 1941; Mold., Alph. List Inv. Names 17, 18, 20, 21, & 56. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 46-48, 50, & 89. 1942; Mold., Phytologia 2: 98. 1945; Mold., Alph. List Cit. 2: 504. 1948; H. N. & A. L. Mold., Pl. Life 2: 52. 1948; Mold., Alph. List Cit. 3: 828 & 963 (1949) and 4: 1153. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 111-114, 118, & 180. 1949; Metcalfe & Chalk, Anat. Dicot. 1037. 1950; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 101. 1959; Mold., Résumé 136-141, 143, 146, 261, 262, 272, & 448. 1959; Dale & Greenway, Kenya Trees 582. 1961; Hansford, Sydowia Ann. Myc., ser. 2, Beih. 2: 689. 1961; Irvine, Woody Pl. Ghana 750-752, pl. 32. 1961; Gledhill, Check List Flow. Pl. Sierra Leone 30. 1962; H. Huber in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 440, 441, & 443. 1963; Nielsen, Introd. Flow. Pl. W. Afr. 164. 1965; Bouquet, Invent. Pl. Méd. Tox. Cong. Braz. 32. 1967; Mold., Résumé Suppl. 15: 14 & 18. 1967; Richards & Morony, Check List Pl. Mbala 236. 1969; Gillett, Numb. Check-list Trees Kenya 46. 1970; Mold. in Menninger, Flow. Vines 333. 1970; Mold., Fifth Summ. 1: 215-217, 219-221, 223, 225, 226, 228, 233, 242, 245, 440, 442, 448, 454, 460, & 463 (1971) and 2: 621 & 862. 1971; Jaeger & Mold., Phytologia 30: 389-391. 1975; Jaeger, Marcellia 39: 15-19, fig. 1-4. 1976; Mold., Phytologia 46: 187. 1980; Mold., Phytol. Mem. 2: 206, 207, 210, 212, 213, 215-218, 223, 224, 230, 232, 235, 383, 390, & 534. 1980; Mold., Phytologia 50: 250 (1982) and 58: 206. 1985.

Illustrations: Irvine, Woody Pl. Ghana pl. 32 (a). 1961; Jaeger, Marcellia 39: 15-17, fig. 1 & 2. 1976.

A subshrub or more usually a large, glabrous, sun-loving, high-climbing, woody vine or liana, quite ornamental, 2-33 m. tall, often climbing over tall trees; stems 1.8-3 cm. in diameter, often hollow, thorny, sometimes procumbent and rooting; wood hard; sap colorless; pith septate; larger branches mostly very conspicuously long-spinose, sometimes procumbent; lenticels prominent; petiolar spines large, woody; leaves opposite or subopposite, deciduous; petioles elongate, 2-4 cm. long or longer, articulate, glabrous (or puberulent on the upper margins), basally woody, the base persisting as a spine; leaf-blades thin-membranous or papery, fragile in drying, oblong or ovate-lanceolate to elliptic, broadly elliptic, or ovate to ovate-elliptic, 7.5-20 cm. long, 3-10 cm. wide, apically acuminate, marginally entire, basally obtuse or rounded to narrowly cuneate, completely glabrous on both surfaces, minutely punctate beneath, somewhat glossy and medium-green above, dull and paler beneath; secondaries 5 or 6 pairs, impressed above, prominulent beneath, looping near the margins; inflorescence axillary and terminal, frequently cauliflorous at or near the base of the stem, often also borne on thick leafless branches and older wood or on leafy twigs, cymose, paniculate, to 17.5 cm. long; peduncles 6-12 mm. long, glabrous; pedicels 3-5 mm. long, glabrous; bractlets minute, filiform or subulate, usually 2-3 mm. long, glabrous; cymules dense, borne laterally on a central rachis 5-30 cm. long, forming an elongate, leafless, many-flowered, thyrsoid panicle, the individual cymules 5-7-flowered; flowers frag-

rant or odorless depending on time of day, handsome, rather crowded in the cymules; calyx campanulate to narrow-tubular or infundibular, gradually ampliate from base to apex, 5--8 mm. long, green or pale-green, externally glabrous, apically 4--6 mm. wide, the tube usually 3--5 times as long as the teeth, the rim shortly 5-toothed, the teeth deltoid-triangular or ovate, very small, apically acute, basally about 2 mm. wide; corolla white, tubular-hypocrateriform, the tube slender, 1.2--2.5 cm. long, 1.2--3 times longer than the calyx, externally glabrous, the limb 5-parted, slightly hooded, the lobes slender, 4--5 mm. long, glabrous, eventually reflexed; stamens 4, about twice as long as the corolla-lobes, exserted about 1.5 cm. from the corolla-mouth; filaments white; style exserted about 1.5 cm.; fruiting-calyx accrescent, cupuliform, white or whitish, inflated, enclosing the fruit; fruit oblong or subcylindric-conic, drupaceous, at first greenish, then red, finally black, shiny, 2- or 3-celled, usually 2-seeded.

Collectors have found this plant growing in high, dense, secondary, riverine, and gallery forested plateaus, in virgin forests of *Scorodophloeus zenkeri* on terra firma, on steep banks, in rocky gullies, and in tangled undergrowth, at 940--2100 m. altitude, in flower from January to December, in fruit in January, April, October, and November. Onochie reports finding it in the shade of *Albizia zygia* and notes that the "petals grow after pollination up to twice as long".

Vernacular names reported for this species are "bakoréne", "bompoutou", "bomputu", "botújwá-boséséke", "boundou", "elià", "fafa-hinei". "fafe", "gwendji", "ifonge", "imbambake e boliki", "male", "mbambake e boliki", "mosongo-songo", "mushitu", "taasendua", "yongongo", and "bakorene guéna".

The chopped-up leaves of this plant are mixed with food by natives to stimulate the appetite, while the dried leaves are smoked as a tobacco substitute. Dalziel (1937) and Irvine (1961) report that "The leaves are crushed, warmed, and rubbed on the body in the Camerons area for rheumatism. The leaves, with others, are used for snake-bite.....A leaf infusion, with pepper, is used for cold in the chest" in Ghana. DeWildeman (1912) tells us that the thorns are often employed as fish-hooks.

The flowers of this species are often galled by a species of *Paracopium*, as illustrated by Jaeger (1976) and as seen on Tanner R.T.4941. The insect involved is a member of the *Heteroptera* whose imago stage is frequently present in the parasitized corollas. "The action of the parasite produces striking changes in the perianth and reproductive organs" of the host plant. The normal, narrow, tube-like corolla loses its verbenaceous appearance, changing into a broadly cylindric-campanulate organ about 2 cm. long and 1--1.5 cm. wide, the lobes becoming semi-elliptic and 5--7 mm. long, thus resembling the flower of *Digitalis purpurea*. The reproductive organs are also deeply modified and become sterile.

Hansford (1961) reports the fungus, *Meliola clerodendri* Hansf., as parasitizing *Clerodendrum buchholzii* in Sierra Leone and Ghana, based on Deighton 496, 1553, 1824, CB.758, & CB.872.

Wood samples accompany Breteler 2152 in several herbaria.

Clerodendrum buchholzii was based by Gürke (1893) on *Buchholz* s.n. and *Preuss* 404 & 497 from the Cameroons and on *Mechow* 86 from Angola, the first of these from Victoria (collected in September 1873), the second from brushwood between Barombi Station and Kumba, collected on August 22, 1890, the third from the North Bay of Elephant Lake, collected on September 8, 1890, and the last from Pungo Andongo, collected between January and April of 1879, all deposited in the Berlin herbarium, now destroyed. The first mentioned probably should be regarded as the type collection. Gürke comments that "Diese Art ist hauptsächlich durch den lianeartigen Stamm, die lockeren, regelmässig walzenförmigen Rispen und den trichterförmigen Kelch charakterisiert".

Clerodendrum preussii is based on *Preuss* 1008 from brushwood along a brook in the lower half of the bathing resort at Ober-Buea, Cameroons, at 940 m. altitude, collected on September 29, 1894. Gürke (1893) comments that "Diese Art ist mit *C. Buchholzii* nahe verwandt. Sie unterscheidet sich durch die mehr eiförmigen Blätter, durch die meist achselständigen Cymen, welche dort stets zu endständigen oder aus dem alten Holz hervorbrechenden Rispen vereinigt sind, ferner durch die dünneren Blütenstiele, die kleineren Kelche und schmächtigeren Blumenkronenröhren; auch sind hier die Kelche röhrenförmig und nur an der Spitze glockig verbreitert, während sie bei *C. Buchholzii* von der Basis an sich allmählich trichterförmig erweitern". Thomas (1936) still keeps the two taxa separate, distinguishing them as follows:

"Kelch parallelwandig, 1/5 gespalten, Zipfel nicht abstehend; Blütenstand meist kauliflor; Blätter bis 30 cm lang"....*C. buchholzii*. "Kelch gegen Spitze erweitert, 0,6--0,8 cm lang, Zipfel etwas abstehend; Zipfel grösser als bei voriger Art; Blätter bis 15 cm lang, eilänglich; im Blütenstand vereinzelt grosse Laubblätter"....*C. preussii*.

For the former taxon he cites from Cameroons: *Buchholz* s.n., *Busse* 3195, *Büsgen* 84, *Deistel* 158, *Jungner* 259, *Ledermann* 6356, *Mildbraed* 10507, *Preuss* 404 & 497, *Winkler* 215, and *Zenker* 1078; from Fernando Po: *Mildbraed* 6259 & 6442; and from Angola: *Nolde* 271. For *C. preussii* he cites from Cameroons: *Deistel* 64, *Ledermann* 1883, 5840, & 5888, and *Preuss* 1008, and from Annobon: *Exell* 873. In some of my previous notes *C. preussii* was regarded as a synonym of *C. silvaeanum* Henriq. Bakhuizen (1921) asserts that, in his opinion, *C. buchholzii* is conspecific with *C. manetti* Vis., Sem. Hort. Patav. 2: 120, pl. 3 (1848-1849), which, if true, would require *C. manetti* to become the accepted name for what we now know as *C. buchholzii* due to reasons of priority. I have as yet not seen the type of *C. manetti*. *Clerodendrum preussii* var. *silvaeanum* (Henriq.) Thomas is regarded by me as a synonym of *C. silvaeanum* Henriq.

Moore (1916) asserts that *C. buchholzii* resembles *C. validipes* S. Moore, but the latter has the corolla-tube scarcely longer than the calyx, the petiole-bases are persistent, and the leaves are often subopposite or alternate. Wernham (1916) opines that it is related to *C. chamaeriphes* Wernh., which has relatively much longer corolla-tubes.

It is worth noting here that Thomas (1936) cites the Gürke (1893)

reference as "1900" in error, while Baker (1900) cites the Hiern (1900) reference as "1.843". He cites Preuss 940 & 1008 as representing *C. preussii* from Cameroons; Bates 473, Buchholz s.n. and Preuss 404 from Cameroons and Mchow 86 from Angola for *C. buchholzii*, also commenting that "This may be identical with *C. Manetti*, Vis. Ill. Plante Orto Padova, iii. (1856) 20, t. 3, a garden plant of uncertain origin". For *C. kentrocaule* he cites only the type collection, Welwitsch 5682, from Pungo Andongo, Angola. He separates his three proposed taxa as follows:

1. Flowers small, $\frac{1}{2}$ inch long.....*C. kentrocaule*.
1a. Flowers large, over $\frac{1}{2}$ inch long.

2. Leaf-blades oblong.....*C. buchholzii*.

2a. Leaf-blades ovate.....*C. preussii*.

It should be noted that the characters he uses are not at all the ones that Thomas (1936) uses (see above).

Another key which sometimes proves helpful in distinguishing *C. buchholzii* from some of its relatives is the following:

1. Leaf-blades always marginally entire.

2. Inflorescence mostly cauliflorous at or near the base of the stems; larger branches mostly very conspicuously long-spiny; leaves mostly glabrous.

3. Calyx narrow-elongate, 6--8 mm. long; leaf-blades thin-membranous, fragile.

4. Petioles short, 5--18 mm. long, entirely glabrous; calyx glabrous.....*C. silvestre*.

4a. Petioles elongate, to 4 cm. long or longer, pubescent at least on the upper margins; calyx puberulous...*C. buchholzii*.

3a. Calyx broadly obconic; leaf-blades somewhat leathery, not fragile.....*C. laxicymosum*,

2a. Inflorescence plainly axillary or terminating the branchlets.

5. Leaf-blades mostly leathery, glabrous; branches very conspicuously long-spiny.

6. Inflorescence congested, often subcapitate; calyx about 5 mm. long, nigrescent; veinlet reticulation mostly flat above...
C. botryoides.

6a. Inflorescence very loose; calyx about 7 mm. long, not nigrescent, stramineous; veinlet reticulation mostly prominent on both surfaces.....*C. laxicymosum*.

1a. Leaf-blades mostly more or less marginally dentate.....
C. tanganyikense.

Gürke (1900) comments in his discussion of *C. thonneri*: "Am nächsten steht die Art dem Cl. *Preussii* Gürke und Cl. *Buchholzii* Gürke, mit denen sie in der Grösse und Form des Kelches, in den Grössenverhältnissen der Blumenkrone und im allgemeinen auch in der Form und Kahlheit der Blätter übereinstimmt. Cl. *Preussii* Gürke hat aber sehr lockere Blütenstände und ist auch ein bis 15 m hoch kletternde Liane. Cl. *Buchholzii* Gürke ist zwar ebenfalls strauchig; ihre viel grösseren lockeren Rispen entspringen aber meist dich über dem Erdboden aus dem Stamm; auch scheinen ihre Kelchzipfel etwas länger und ihre Blumenkronenröhren im allgemeinen etwas kürzer zu sein als bei der vorliegenden neuen Art."

Chevalier (1920) records *C. buchholzii* from French Guinea and Iv-

ory Coast. Richards & Morony (1969) cite Bull 2618, Fanshawe 5629, and Richards 9582 & 22176 from Mbala. Irvine (1961) cites Fishlock s.n., Gould s.n., Irvine 68, 866, 2552, & 3535, Johnson 169, 462, & 771, and Vigne 3386 & 4256 from Ghana. He gives the overall distribution of the species, as regarded by him, as "Guinea to Gaboon, Angola, and Uganda", referring to the plant as "An ornamental climber sometimes cultivated".

Hutchinson (1931) distinguishes *C. buchholzii* from its closest large-flowered relatives as follows:

1. Calyx about 1 cm. long.....*C. umbellatum*.
- 1a. Calyx at most 8 mm. long.
2. Calyx-lobes narrow-lanceolate.....*C. splendens*.
- 2a. Calyx-lobes short-triangular.
3. Calyx tubular, 8 mm. long; flowers rather crowded in the cymules; corolla-tube glabrous.....*C. buchholzii*.
- 3a. Calyx short and cupular, 3-4 mm. long; flowers lax, the ultimate pedicels about 2 cm. long; corolla-tube pubescent....
C. bipindense.

Huber (1963) cites for *C. buchholzii* - Caille in Chevalier 14899 & 15049 from Guinea; Deighton 2358 & 2530, Jaeger 1634, Jordan 124, and Thomas 1921 from Sierra Leone; Baldwin 7082 and Linder 184 & 730 from Liberia; Chevalier 16009, 15010, 19320, & 20160 from Ivory Coast; Darko WACRI 946, Gould s.n., Johnson 169 & 771, and Vigne FH. 4256 from Ghana; Jones FHI.6721, Latilo FHI.31876, Moses & Jonathan FHI.19181, Punch s.n., and Talbot s.n. from Southern Nigeria; Hutchinson & Metcalfe 5, Keay FHI.28580, Maitland 311, Mildbraed 10507, Olorunfemi FHI.30520, and Onochie FHI.34838 from Cameroons; and Boughey 62, Guinea 424, Vogel 157, and Wrigley 684 from Fernando Po, giving its overall distribution as also including Gabon, Zambia, Angola, and "E. Africa".

Hutchinson & Dalziel (1931) cite Chevalier 14809, 15049, 16009, 16010, 19320, & 20150, Deighton 1370, Holland 233, Johnson 169, 462, & 771, Linder 252 & 730, Mildbraed 10507, Punch s.n., Thomas 1921, and Williams 40 from French Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Southern Nigeria, and Cameroons.

DeWildeman (1922) cites Bequaert 6438 from lower Middle Congo and in his 1912 work Jespersen s.n. and Malchior 379. Irvine (1930) cites his no. 866 from Ghana, where, he says, the plant occurs in secondary forests. Nielsen (1965) also asserts that the species is often seen in secondary forest growth. Good & Exell (1930) cite their nos. 1054 & 7506; Jaeger & Moldenke (1975) cite Jaeger 1634 & 1698 and Adam 22640.

The Louis 6365 collection (in flower), cited below, and 7152 (in fruit) are said to have been taken from the same plant.

Material of *C. buchholzii* has been misidentified and distributed in some herbaria as *C. bakeri* Gürke, *C. schweinfurthii* Gürke, *C. thonneri* Gürke, and even *Polyalthia* sp. On the other hand, the Baldwin 7082 and Vigne 3386, distributed as *C. buchholzii*, actually are *C. botryodes* (Hiern) J. G. Baker, Chandler 1587 is *C. laxicymosum* DeWild., Leonard 485 and Nannan 150 are *C. thonneri* Gürke, Hulstaert 1170 is a mixture with *C. triplinerve* var. *sulcatum* (Thomas) Mold., Gossweiler 14054 is *Kalaharia uncinata* (Schinz) Mold., and

Dunner 19 and Zenker 2841 are mixtures with something not verbena-ceous.

Citations: NIGERIA: Onochie A.39/46 [FHI.7543] (B). CAMEROONS: Breteler 2152 (Mu); Gocker 69 (W--1051345); Jungner 259 (S); Preuss 404 (L, Ld--photo, Mu, N--photo, S, W-813842), 1008 (L); Staudt 440 (L); Zenker 131 (Gg--151084, N, W-1178265), 1075 (S), 1694 (L, Mu--3716), 2047 (L, Mu--3776), 2843 (Mu--4003), 4391 (L), s.n. [Bipindi] (Ca--620050). ZAIRE: Butayer 2326 (Br); Corbisier 109 (Br); DeGiorgi 1400 (Br), 1407 (Br, N); Dunner 19 in part (Br); Hulstaert 1107 in part (Br); Jespersen s.n. [1910] (Br); Lebrun 4140 (Br, Br, N); J. Leonard 485 (Br, N); Louis 525 (Br, N), 6365 (Br, W-2090996), 7152 (Br); Malchior 379 (Br); Mortehan 486 (Br); Mullenders 493 (Br, Br, Br), 2328 (Br); Nannan 120 (Br); Putman 120 (Br); Scaetta 852 (Br); Schoutenden-Wery & Poma 151 (Br); Taton 392 (Br, Br); Van der Ben 776 (Mu); Wellens 296 (Br); Zenker 2841 in part (Br). BURUNDI: Reekmans 7778 (Ac). UGANDA: Bagshawe 1269 (W--1349162). TANZANIA: Tanganyika: Tanner R.T.4941 (Ba), 4942 (Ba). ZAMBIA: LRLCS.22176 (N). MOUNTED ILLUSTRATIONS: Jaeger, Marcellia 39: 15--17, fig. 1 & 2. 1976 (Ld).

CLERODENDRUM BUCHHOLZII var. *PARVIFLORUM* Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 69. 1936.

Bibliography: B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 69. 1936; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 50 & 89 (1942) and ed. 2, 118 & 180. 1949; Mold., Résumé 146 & 448. 1959; Mold., Fifth Summ. 1: 242 (1971) and 2: 862. 1971; Mold., Phytol. Mem. 2: 232 & 534. 1980.

This variety differs from the typical form of the species in having smaller flowers, often only 1 cm. long in all.

The variety is based on Mechow 86 from Pungo Andolgo, Angola, collected on April 1, 1919, and deposited in the Berlin herbarium, now destroyed. Thomas (1936) cites also Gossweiler 1054 from Malange, Angola.

Nothing is known to me of this taxon except what is stated in the bibliography.

CLERODENDRUM BUCHNERI Gürke, Engl. Bot. Jahrb. 18: 172--173 [as "Clerodendron"]. 1893; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 37, 64, & 92. 1936.

Synonymy: *Clerodendron buchneri* Gürke, Engl. Bot. Jahrb. 18: 172. 1893. *Clerodendron strictum* J. G. Baker ex Hiern, Cat. Afr. Pl. Coll. Welw. 1: 840--841 in syn. 1900; J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 305. 1900. *Siphonanthus cuneikolia* (Baker) Hiern, Cat. Afr. Pl. Coll. Welw. 1: 841. 1900. *Siphonanthus stricta* (Baker) Hiern, Cat. Afr. Pl. Coll. Welw. 1: 840. 1900. *Clerodendron cuneifolium* (Hiern) J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 305. 1900. *Clerodendron cuneifolium* Bak. apud K. Schum., Justs Bot. Jahresber. 28 (1): 496. 1902. *Siphonanthus stricta* Hiern apud Thiselt.-Dyer, Ind. Kew. Suppl. 2: 172. 1904. *Siphonanthus cuneifolia* Hiern apud Thiselt.-Dyer, Ind. Kew. Suppl. 2: 172. 1904. *Clerodendron hockii* DeWild., Bull. Jard. Bot. Brux. 3: 266--267. 1911. *Clerodendrum strictum* Baker apud B. Thomas, Engl. Bot. Jahrb. 68:

[Gatt. Clerod.] 64 in syn. 1936. *Clerodendrum cuneigolium* Baker apud B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 64 in syn. 1936. *Clerodendrom buchneri* Gürke ex Astle, Kirkia 7: 89 sphalm. 1968.

Bibliography: Gürke, Engl. Bot. Jahrb. 18: 172--173. 1893; J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 294, 305--307, & 518. 1900; Hiern, Cat. Afr. Pl. Coll. Welw. 1: 840--841. 1900; K. Schum., Justs Bot. Jahresber. 28 (1): 495 & 496. 1900; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 101. 1901; Gürke in Warburg, Kunene-Sambesi Exped. 351. 1903; Hegi in Warburg, Kunene-Sambesi Exped. 443. 1903; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 43 & 172. 1904; DeWild., Bull. Jard. Bot. Brux. 3: 266--267. 1911; Fedde & Schust., Justs Bot. Jahresber. 40 (2): 335. 1915; Good & Exell, Journ. Bot. Brit. 68. Suppl. 2: 141. 1930; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 37, 64, 92, 93, & 96. 1936; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 101. 1941; Mold., Alph. List Inv. Names 17, 18, 20, 140, & 141. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 48--50 & 89. 1942; H. N. & A. L. Mold., Pl. Life 2: 52. 1948; Mold., Alph. List Cit. 3: 824. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 115, 116, 118, 119, & 180. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 101. 1959; Mold., Résumé 141, 143, 146, 148, 151, 262, 264, 270, 344, & 448. 1959; F. White, For. Fl. North. Thodes. 365 & 367. 1962; Astle, Kirkia 7: 89. 1968; Mold., Résumé Suppl. 16: 7 & 14. 1968; Richards & Morony, Check List Fl. Mbala 236. 1969; Mold., Fifth Summ. 1: 228, 232, 235, 242, 245, 247, 253, 438, 443, 446, & 456 (1971) and 2: 662 & 862. 1971; Lewalle, Bull. Jard. Bot. Nat. Belg. 42 [Trav. Univ. Off. Bujumb. Fac. Sci. C.20]: [230]. 1972; Malaisse in Lieth, Phenol. Season. Model. 276 & 438. 1974; F. White, Gard. Bull. Singapore 29: 69. 1977; Mold., Phytol. Mem. 2: 218, 222, 224, 232, 235, 236, 242, 437, & 534. 1980.

An erect herbaceous perennial or small subshrub, rhizomatous, mostly few-stemmed, sometimes bushy, 0.3--1.2 m. tall; rootstocks deep, woody, horizontal; stems herbaceous or somewhat woody, virgate, erect, pubescent; young branches puberulent; leaves mostly alternate or approximate, sometimes opposite, close, ascending, bright-green; petioles short, only 5--10 mm. long; leaf-blades subcoriaceous, obovate-cuneate or obovate-lanceolate to oblong, 7--15 cm. long, 2--4 cm. wide, apically short-acuminate or cuspidate, marginally irregularly repand on the upper half, basally entire and cuneate or obtusely attenuate, glabrous or subglabrescent above (when mature), puberulent and reticulate-venose beneath, the puberulence principally on the venation; inflorescence terminal, capitate, bracteate, mostly dark-red or purple in the fruiting stage; cymes globose, dense, many-flowered, sessile or subsessile to short-pedunculate; outer bracts foliaceous, similar in form to the uppermost leaves and surpassing them, oblong-lanceolate, about 35 mm. long and 15 mm. wide, apically mucronate, marginally entire, basally attenuate, glabrous above, puberulent beneath; bractlets shorter than the bracts, lanceolate, mostly 8--10 mm. long and only 1--3 mm. wide, apically long-acuminate, basally attenuate, the inner ones gradually smaller; flowers subsessile or short-pedicellate, the stalk much shorter than the subtending bractlet, sometimes galled; calyx tubu-

lar-cyathiform, 1.7--2 cm. long, externally pubescent, deeply 5-parted, often reddish or brown, the tube small and very short, the lobes large, foliaceous, ovate or ovate-lanceolate, 5-6 mm. wide, apically acute or acuminate, somewhat thin-textured so that the venation is plainly prominulous; corolla white or cream-color, long-tubular, the tube slightly incurved, 4--9 cm. long, apically inflated, sometimes greenish-white, externally glandulose and sparsely long-pubescent, the 5 lobes unequal or subequal, 8--15 mm. long; stamens 2.5--3.5 cm. long, very long-exserted; anthers yellow; pistil 10--11 cm. long; fruit drupaceous, 4-lobed, at first green, finally black and shiny; seeds with a red or orange aril.

The species is based on Buchner 572 from the Malange district, Angola, collected on April 12, 1881, and deposited in the Berlin herbarium, now destroyed. Gürke (1893) cites also Mechow 129 & 557a in his original publication, but the Buchner collection was designated as the type by Thomas in 1936. Gürke comments: "Von *C. capitatum* Schum. et Thonn. durch die kürzer gestielten, schmäleren, meist in der Stiel verschmälerten Blätter verschieden". *Clerodendron cuneifolium* was based by Baker (1900) on Welwitsch 5684 from the province of Pungo Andongo, Angola, and *C. strictum* was based by him on Welwitsch 5685 from the same locality; *C. hockii* was based on Hock s.n. from Zaire.

Siphonanthus cuneifolia and *S. stricta* were both based by Hiern (1900) on Baker manuscript names in *Clerodendron* given by Hiern in synonymy. Baker, on the other hand, in his work in the same year does not cite the Hiern names. The Hiern work is sometimes cited as volume "4", but appears to be only part 4 of volume 1.

It should also be pointed out that Gürke's original publication of *C. buchneri* was in 1893, not in "1894" as stated on the volume titlepage and as sometimes cited.

Vernacular names reported for this species are "lukandambo", "munega", "tshitsushi", and "vavengariha". Collectors have found the plant growing in red or sandy soils or loam, on herbaceous or woody savannas, dry steppes, anthills, hillsides, and partly wooded plateaus, in open forests and woodlands (especially *Brachystegia* woodlands), secondary forests and fallow land, among long grass in the dense *Acacia* zone, and in the open ground which was once *Brachystegia* woodland, at 800--2000 m. altitude, in flower from October to April, as well as in June and August, and in fruit in April, June, and August.

Lewalle (1972) records the species from Burundi, citing Lewalle 1164; Astle (1968) lists it from Zambia, citing Astle 1926. Hirschberg found it to be "common" in Zaire, while Allen reports it similarly common in Zimbabwe. White (1977) lists it for the Zambezian ecologic region, while Hegi (1903) gives its distribution as the Congo district of tropical Africa. Gürke (1903) encountered it "Auf Sandboden am Rande von Elephantsbusch, unweit einer wasserhaltenden Pfanne", citing his no. 533 and giving its distribution as only the Congo region and Angola.

Quarre comments regarding *C. buchneri*: "petite herbacée sous ligneuse a bois brun, feuilles vertes très lissé a nervures en relief et blanche.....Cette forme est commune, c'est une sorte d'herbacée a

tige brune a peine semiligneuse mais dont la racine est très ligneuse et semble provenir d'un grand arbrisseau."

The leaves are all alternate from top to bottom of the stems on Bredo 3802, Homblé 905, and Ringoet 375 & s.n. [1920], mostly alternate on Ringoet s.n. [9/3/12], and both alternate and approximate on Quarré 4172. Galled flowers are seen on Bequaert 240, Homblé s.n., and Mendes 2038, making huge bignoniaceous-like corollas to be formed.

In all cases where a collector or author gives the corolla color for this species it is given as "white" except for Richards 19653 where it is described as "cream" color.

It is of at least passing interest to note how Baker (1900) separates this and his other supposed species from their capitate-flowered relatives:

- 1. Leaf-blades obovate-lanceolate.....*C. buchneri*.
- 1a. Leaf-blades oblong.
- 2. Corolla-tube 2--2½ inches long.....*C. strictum*.
- 2a. Corolla-tube 3--4 inches long.....*C. capitatum*.
- 2b. Corolla-tube 4--5 inches long.....*C. fischeri*.
- 1b. Leaf-blades cordate-ovate.
- 3. Leaf-blades thin-textured.....*C. hysteranthum*.
- 3a. Leaf-blades subcoriaceous.....*C. megasepalum*.
- 1c. Leaf-blades obovate-cuneate.
- 4. Leaf-blades 3--4 inches long.....*C. cuneifolium*.
- 4a. Leaf-blades 8--12 inches long.....*C. grandifolium*.
- 1d. Leaf-blades ovate-orbicular, basally rounded.....*C. speciosum*.
- 1e. Leaf-blades cordate-orbicular.....*C. orbiculare*.

Of these, *C. cuneifolium* and *C. strictum* are now regarded as conspecific with *C. buchneri*, while *C. hysteranthum*, *C. megasepalum*, *C. orbiculare*, and *C. speciosum* are now regarded as conspecific with *C. angolense* Gürke.

For *C. buchneri* Hutchinson (1946) cites his no. 3685; Richards & Morony (1969) cite Bull 2078 and Richards 769, 7325, 8335, 19653, & 22070 from Mbala; and Thomas (1936) cites from Angola: Baum 533, Buchner 572, Gossweiler 1050 & 9608, Pocock 216, and Welwitsch 9685; from Zaire: Hock s.n., Mechow 557a, and Pogge 544; and from Tanganyika: Fromm-Münzner 86 and Kassner 3066a. Good & Exell (1930) cite Gossweiler 1050 & 2334 from Angola.

Material of *C. buchneri* has been misidentified and distributed in some herbaria as *C. capitatum* Schum. & Thonn. and *C. formicarum* Gürke. On the other hand, the Lemos & Macuácuia 50, distributed as *C. buchneri*, actually is *C. mossambicense* Klotzsch, while Herb. IRLCS.511 is *C. tanganyikense* J. G. Baker and Peter 25046 and Swynnerton 45, distributed as *C. strictum*, are *C. capitatum* var. *cephalanthum* (Oliv.) J. G. Baker.

Citations: ZAIRE: Bequaert 240 (Br), 240bis (Br); Brande 216 (Br); Bredo 3789 (Br), 5049 (Br); Callens 3107 (N); Dubois 1308 (Br, Br); Giorgi 342 (Br), 367 (Br), 413 (Br), s.n. [Envir. Elisabethville, 1923] (Br, Br, Br, Br, Br, N); Hirschberg 230 (Af-3393); Hock s.n. (Br, Ld--photo, N--photo); Homblé 905 (Br, Br), s.n. (Br); Malaisse 6138 (Ld); Quarré 167 (Br, Br, N), 1763 (Br), 1958 (Br), 3180 (Br, Br), 4172 (Br, Br), 4838 (Br, Br, Br), 6092 (Br). [to be continued]